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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,947	08/06/2003	Stuart L. Roberts	108298729US	1224

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EXAMINER

EVANS, GEOFFREY S

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/635,947	Applicant(s) ROBERTS ET AL.	
	Examiner Geoffrey S. Evans	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-40 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8-12, 14-17, 19, 20, 22-24, 28, 29, 41 and 43-45 is/are rejected.
- 7) ☒ Claim(s) 4, 7, 13, 21, 25-27 and 42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>20060903</u> . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

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DETAILED ACTION

1. The drawing received on 23 June 2006 is acceptable.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,3,5,6,8-10,12,14-17,19,20,22-24,28,29,41,43, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ihara in Japan Patent No. 2000-323,517 in view of Tominaga in Japan Patent No. 61-14817. Ihara discloses a method of wire bonding and a wire bonding device by positioning an electrode proximate to a wire (element 6) attached to a terminal of a microelectronic component (see paragraph 3) by electric discharge (see paragraph 7). Ihara further discloses forming a ball at the end of the cut wire (see paragraph 17). Ihara does not disclose using two electrodes to cut the wire. Tominaga teaches using two electrodes (elements 32) that are tip shaped, are on opposite sides of the wire and at an angle generally normal to the wire, one electrode positively charged as a cathode and a second electrode negatively charged as an anode (see figure 1) to instantaneously cut a wire. It would have been obvious to adapt Ihara in view of Tominaga to provide this to instantaneously cut the wire. Regarding claim 10, an electric discharge is a short arc. Regarding claim 24, element 41 of Tominaga discloses a controller for selectively causing a discharge between the first and second electrodes.

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4. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ihara (517) in view of Tominaga (817) as applied to claim 1 above, and further in view of Nishiura in U.S. Patent No. 6,784,394 B2. Nishiura teaches using an electric discharge to create a ball at a tip end of the wire used in a wire bonding device. It would have been obvious to adapt Ihara in view of Tominaga and Nishiura to provide this to create a ball for a subsequent bonding step.

5. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ihara (517) in view of Tominaga (817) as applied to claim 41 above, and further in view of Smith et al. in U.S. Patent No. 3,553,417. Smith et al. teaches using electrodes with end portions that are arcuate (see electrodes 36 and 37 in figure 4) to cause the spark to cut the wire near the tip of the electrode.

6. Applicant's arguments filed 23 June 2006 have been fully considered but they are not persuasive. The motivation to adapt Ihara in view of Tominaga is to more quickly cut the wire. Once the wire is cut, one of ordinary skill in the art would know how to use the two electrodes to create a ball if necessary (instant Independent claim 1 for example does not recite creation of a ball so applicant's arguments have no basis in this claim). However using a single electrode to create a ball at the end of a wire is known in the art (e.g. see paragraph 17 of Ihara) as is using two electrodes to create a ball (e.g. see figure 4 of Felber in U.S. Patent No. 5,263,631, which is not applied to reject the claims) to one of ordinary skill. Furthermore forming a ball at the end of a wire that does not have a burr is desirable, as it would create a symmetrically located ball.

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7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Claims 4,7,13,21,25-27 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


9. Claims 30-40 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571)-272-1292. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

GSE


Geoffrey S. Evans
Primary Examiner
Group 1700